A CASE OF INFECTIVE ENDOCARDITIS DUE TO BACILLUS COLI.

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WITHIN recent years the literature on infective endocarditis contains few references to bacillus coli as the causative organism. One case was reported by Horder,[1] in 1926; one by Thayer,[2] in 1926; one by Cowan,[3] in 1927; and one by Duhig,[4] in 1933. In Muir and Ritchie's *Manual of Bacteriology* the statement is made that "in some cases the bacillus coli is found." On account of the apparent rarity of this type of infection the clinical and bacteriological details of the following case may be of interest:—

The patient, a married woman, aged 43 years, was first admitted to the Glasgow Royal Infirmary on 24th January, 1932, and gave the following history:—

She had scarlet fever in childhood and acute rheumatism at 18 years. The latter illness kept her in bed for three months, but she apparently made a satisfactory recovery, and kept moderately well for the next ten or twelve years. When about 30 years of age she began to experience breathlessness on exertion, such as going upstairs or walking up gradients. She remained in this state, without further development of cardiac symptoms, until July, 1931, when she had a sudden attack of palpitation and breathlessness, which lasted for several hours. During this attack she was weak and giddy and had to be propped up in bed. The following day she was comparatively well, and she had no further attacks until December, 1931, when she had another similar attack, which lasted for several days. Two weeks before admission to hospital her feet and ankles began to swell, and twelve hours before admission she coughed up some bright red blood.

On examination, it was noted that she was a very obese

woman, with a florid, cyanotic complexion, and respiratory embarrassment. There was œdema of the ankles and shins. The heart was enlarged to the right, and a short systolic murmur was audible at the apex. The rhythm was grossly irregular, due to auricular fibrillation, and the rate by auscultation was approximately 144 per minute. Examination of the lungs showed mild generalized bronchitis with impaired percussion at the right base. The sputum was blood-stained, and the urine contained a moderate amount of albumen. Electrocardiographic examinations, made on the day after admission and on subsequent occasions, showed auricular fibrillation with left ventricular preponderance. The Wassermann reaction was negative. The condition at this time was, therefore, one of rheumatic (? endocarditis) heart disease, cardiac failure, auricular fibrillation, and presumably pulmonary infarction.

After admission to hospital she improved steadily. On 7th February she developed another small infarction, in the left lung, but otherwise her progress was satisfactory, and she was discharged on 7th April, fairly well. Fibrillation was still present, and the average rate 80 per minute. The lungs were clear, there was no pyrexia, and she was able to be out of bed for a few hours daily.

After dismissal from hospital she remained fairly well for nearly four months. During this period, though never fit for much exertion, she was able to move about her house quietly. At the beginning of August she suffered from pain in the lower abdomen. This was followed by frequent vomiting and persistent diarrhœa, and she began to take rigors every few days. She was readmitted to hospital on 9th September.

On examination at this time, it was noted that she had become much thinner. Cardiac symptoms were not prominent : there was no œdema and no obvious dyspnœa. The heart, however, was enlarged both to right and left, and a systolic murmur was audible at the apex and over the left half of the præcordium. Auricular fibrillation was still present, but the rate was relatively slow (about 80 per minute). The lungs showed no abnormal physical signs, and the liver was not enlarged. The urine contained urobilin and albumen (0·5 parts Esbach). During the next four weeks she had frequent rigors. These occurred at intervals of two to three days, with varying

degrees of pyrexia. The highest recorded temperature was 105° F. Blood culture was done on 13th and 22nd September, and on both occasions a positive culture of coliform organisms was obtained. Frequent microscopic examinations of the urine showed the presence of pus cells, although naked-eye pyuria was not much in evidence. On 6th October she became jaundiced and drowsy, the pulse-rate increased to 150, and she died three days later.

Autopsy.—The chief *post-mortem* findings, for which we are indebted to Professor J. Shaw Dunn, were as follows :—

There was evidence of old-standing endocarditis of the mitral valve with fibrosis of the cusps, and the formation of a ring of thickened tissue with some narrowing. On the right junction of the cusps there was a large patch of dense vegetation associated with some ulceration of the cusp. The chordæ tendineæ were shortened and thickened. The aortic valve was normal. The left auricle was enlarged and filled with *ante-mortem* thrombus, which was breaking down with considerable pus formation. The tricuspid and pulmonary valves were normal. The right lung showed a few basal pleural adhesions, and the upper lobe showed consolidation in the stage of grey hepatization. The other lobes were slightly congested, but no consolidation was present. The left pleura showed fairly dense adhesions with almost complete obliteration of the space over the upper lobe. A sub-diaphragmatic abscess, the size of a golf ball, was found under the left dome of the diaphragm. This was due to an old infarction in the upper pole of the spleen, which had become infected and broken down. The liver showed fairly advanced nutmeg changes. The kidneys were soft and showed several old infarctions with sclerosis. Scattered here and there were a few minute yellowish areas (? abscesses). The aorta showed well-marked atheroma. The stomach and small intestines were normal. The colon throughout its lower length showed well-marked congestion of the mucosa, but no ulceration was present.

Summary. — Ulcerative endocarditis ; sub - diaphragmatic abscess ; abscess of spleen ; pyæmia.

Bacteriological findings.—Blood culture was first performed on 13th September while the patient was in a rigor. A coliform organism was recovered which, on biochemical examination, gave the reactions of *B. acidi lactici.* During the following

week the patient was apyrexial and there were no rigors, but blood culture was not done during this period. On 22nd September the temperature again rose abruptly, and a rigor followed. Blood culture was repeated at this time, and a coliform organism biochemically similar to the first was recovered. Meanwhile, the urine and fæces of the patient were examined in a search for a coliform organism which would give the same fermentative reactions as those of the strain present in the blood. A coliform bacillus was recovered from the urine and two different types from the fæces, but none of them was biochemically identical with the organism in the blood. The difference in type between the blood and urinary organisms thus helped to eliminate pyelonephritis as the cause of the fever.

At autopsy cultures were made from the endocardial vegetation and from the splenic abscess. In each case a coliform bacillus, biochemically identical with the strain in the blood, was isolated.

Summary.—A case of infective endocarditis due to bacillus coli is described, with the clinical and bacteriological details and a record of the *post-mortem* findings. Although the source of the infecting organism was not definitely established, it is noteworthy that the terminal phase of the patient's illness was preceded by symptoms of a gastro-enteritis, so that the subsequent infection of the endocardium by a coliform organism was probably derived from the bowel.

REFERENCES.

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